

## CLAIMS

What is claimed is:

1. A data processing system, comprising:
  - a plurality of processing nodes connected to operate in a high speed, high bandwidth system topology;
  - each of the processing nodes having at least one agent therein to process data;
  - a recovery bus in the system topology operating at a lower speed than the high speed topology and connecting the plurality of processing nodes together;
  - the agents in the processing nodes monitoring the status of processing in the high speed topology to sense a system error in the high speed topology;
  - the agents in the processing nodes transferring communication from the high speed topology to the recovery bus in response to a system error in the high speed topology.
2. The data processing system of claim 1, wherein the system topology is a non-hierarchical loop interconnect architecture.
3. The data processing system of claim 1, wherein the system topology is a hierarchical bus topology.
4. The data processing system of claim 1, further including:
  - the agents in the processing nodes transferring communication from the recovery bus to the high speed topology in response to the system error being remedied.

1                   5.     The data processing system of claim 1, wherein the recovery bus is a  
2     wired bus.

1                   6.     The data processing system of claim 1, wherein the recovery bus is a  
2     virtual bus.

1                   7.     The data processing system of claim 2, wherein the high speed system  
2     topology includes:

3                         a plurality of address channels coupling said plurality of nodes,  
4     wherein each agent in all of said plurality of nodes is coupled to all of said plurality of  
5     address channels, and wherein each agent can issue transactions on only a single  
6     associated address channel among said plurality of address channels and snoops  
7     transactions on all of said plurality of address channels;

8                         at least one data channel coupling said plurality of nodes; and

9                         data storage accessible to agents within said plurality of nodes.

1                   8.     The data processing system of claim 7, wherein said plurality of  
2     address channels comprises a plurality of address buses.

1                   9.     An interconnect system for a data processing system, said data  
2     processing system including a plurality of nodes that each include at least one agent,  
3     said interconnect system comprising:

4                         a high speed, high bandwidth connection topology connecting the  
5     nodes;

6                         a recovery bus in the system topology operating at a lower speed than  
7     the high speed topology and connecting the plurality of processing nodes together;  
8     and

9                         means for transferring communication from the high speed topology to  
10     the recovery bus in response to a system error in the high speed topology.

1           10.     The interconnect system of claim 9, wherein the recovery bus is a  
2     wired bus.

1           11.     The interconnect system of claim 9, wherein the recovery bus is a  
2     virtual bus.

1           12.     The interconnect system of claim 9, wherein the high speed system  
2     topology includes:

3                 a plurality of address channels coupling said plurality of nodes, wherein each  
4     agent in all of said plurality of nodes is coupled to all of said plurality of address  
5     channels, and wherein each agent can issue transactions on only a single associated  
6     address channel among said plurality of address channels and snoops transactions on  
7     all of said plurality of address channels;

8                         at least one data channel coupling said plurality of nodes; and  
9                         data storage accessible to agents within said plurality of nodes.

1           13.     The interconnect system of claim 12, wherein said plurality of address  
2     channels comprises a plurality of address buses.

1           14.     A method of communication in a data processing system having a  
2     plurality of nodes that each include at least one agent, said method comprising:  
3                 coupling the plurality of nodes together operating in a high speed, high  
4     bandwidth topology;  
5                 providing a recovery bus in the high speed system topology and  
6     operating at a lower speed than the high speed topology;  
7                 monitoring the status of processing in the high speed topology to sense  
8     a system error in the high speed topology; and

transferring communication from the high speed topology to the recovery bus in response to a system error in the high speed topology.

15. The method of claim 14, further including the step of:  
transferring communication from the recovery bus to the high speed topology in response to the system error being remedied.

16. The method of claim 14, wherein said step of coupling comprises the steps of:  
coupling at least one data channel to said plurality of nodes;  
coupling each agent in all of said plurality of nodes to each of a plurality of address channels;  
permitting each agent to issue transactions on only a single associated address channel; and  
snooping, with each agent, transactions on all of said plurality of address channels.

17. The method of claim 16, wherein said plurality of address channels comprises a plurality of address buses, and wherein permitting each agent to issue transactions on only a single associated address channel comprises permitting each agent to issue transactions on only an address bus associated with its node.

18. The method of claim 16, wherein coupling at least one data channel to said plurality of nodes comprises coupling to all of said plurality of nodes only a single data channel.

19. The method of claim 16, wherein said coupling steps comprise coupling each agent in said plurality of nodes to a switched interconnect.

1           20.    The method of claim 16, said data processing system comprising data  
2 storage distributed among said plurality of nodes, wherein said permitting step  
3 comprises permitting each agent to issue requests for data within said distributed data  
4 storage on only an address channel associated with its node.

1           21.    The method of claim 16, said data processing system including  
2 response logic at each node, said method further comprising:  
3                   in response to snooping a transaction on one of said plurality of  
4 address channels, providing a snoop response from each agent at a node to response  
5 logic at that node; and  
6                   combining said snoop response of each agent at that node to produce a  
7 combined response for that node.

1           22.    The method of Claim 21, said combining step further comprising  
2 combining said snoop response of each agents at that node with a combined response  
3 received from another of said plurality of nodes to produce said combined response.